5 WATER SUPPLY RELIABILITY & WATER SHORTAGE CONTINGENCY PLANNING

5.1 Water Supply Reliability

Urban Water Management Planning Act Requirement:

10620(f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

Water supply reliability includes both the availability of the water purchased through the Calleguas Municipal Water District (CMWD) and the distribution and storage facilities that make up the District's water system. The water supplied through CMWD is considered a reliable source. There are currently no opportunities being pursued by the Truinfo Sanitation District (TSD) to discontinue wholesale water service through CMWD for service to OPWS.

As a result of the TSD water supply being provided by CMWD, which in turn is provided through MWD and the SWP, the reliability analysis for this Chapter will be heavily dependent on the reliability analyses of these agencies. Although TSD is dependent on these sources to provide a reliable water supply, TSD/OPWS is one of twenty CMWD purveyors that will continue to ensure supply and reliability in the future. Instead of attempting to replace water supplies that are deemed unreliable by seeking alternate water sources, TSD will continue to work with CMWD to ensure that the necessary improvements are made to ensure a high quality and reliable source of water.

Urban Water Management Planning Act Requirement:

10631(c)(2) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

Currently, the only source of potable water that the TSD utilizes is wholesale distributed water through CMWD. Additional water supplies are obtained by treating wastewater (at TWRF) from service areas outside of the OPWS area and using it as recycled water for irrigation purposes only.

Table 5.1.1
Factors Resulting in Inconsistency of Supply

Water Supply Sources	Legal	Environmental	Water Quality	Climatic	Additional information
CMWD Wholesale Water			✓		NA
Recycled Water			✓		NA

Units: acre-feet per year

CMWD Wholesale Water

CMWD identified that its water supply to the District is considered reliable and sufficient to meet demand. However, the reliability of the supply is dependent on the water quality delivered by the SWP to MWD. In general, the SWP quality has been considered good, with delivered water meeting the state threshold requirements but as seawater intrusion into the Bay-Delta increases, water quality may be diminished. In addition, as water moves through the Bay-Delta, levels of total organic carbon and bromide are likely to increase. Water quality can also be affected by the amount of wastewater that is disposed, as this provides a means for the transportation of salts and pathogens to clean water supplies. To prevent these water quality issues from affecting the overall reliability of supply, water quality analyses are conducted throughout the delivery process and at the water treatment plants to ensure water is safe prior to delivery. Furthermore, state regulatory factors have included biological assessments affecting the amount of water delivered from the Delta to the SWP system to prevent

degradation of water quality from the Delta. MWD, CMWD, and TSD are diligent in identifying poor water quality and acting immediately to ensure it is treated properly to ensure a clean source of potable water. Please see Section 5.3 for more information regarding water quality.

Recycled Water

Recycled Water is treated as described in Chapter 4. This water supply is also deemed generally reliable. Similar to the District's purchased water supply, water quality issues have the potential to impact reliability and threaten the supply of recycled water.

The industry must meet water quality standards set forth by regulating agencies. These standards are prone to change as new issues develop; in response to these changing standards, recycled water treatment plants (e.g. Tapia Water Reclamation Facility (TWRF)) must adapt to the regulations and modify the process as necessary to ensure that water can continually be delivered to its customers. The Joint Powers Authority between TSD and LVMWD to deliver recycled water, along with CMWD, ensures that all aspects of distributing recycled water are met, and that high quality recycled water is delivered to its customers for non-potable use. The plant is also receptive to any changes that must be made in the treatment or distribution process to ensure compliance with all water quality standards and that water is safe for irrigation use.

5.2 Water Shortage Contingency Planning

Urban Water Management Planning Act Requirement:

10632(c) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

Catastrophic failures that put the water supply at risk include fires and earthquakes that could damage the infrastructure to the water distribution system. In the event of a catastrophic event that prevents the District from obtaining water for distribution, CMWD implements actions and methods to continue supplying water to customers of its member agencies. Water reserves are available in Lake Bard, and it is estimated that CMWD could provide at least 75% of its annual demand for all of its service areas for three to six months following a catastrophic event that disrupts the supply of water from MWD. In addition, methods to ensure that water is continually supplied to the customers include stockpiling emergency pipeline repair materials and

coordinating with the Office of Emergency Services (OES) and Emergency Operations Center (EOC) in the event of a catastrophic disruption of supply.

Any effect seen by the CMWD during a catastrophic event would impact the water supply to the District. As a result, the District is subject to the actions and rationing of CMWD and contains adaptive language to stages of rationing in its own 2009 Water Shortage Contingency Plan. The District is also included in the Ventura Regional Sanitation District (VRSD) Emergency Plan, which identifies the actions necessary to continue healthy water supply in the event of a disaster such as a regional power outage or earthquake. The District is discussed in Section 2.1 of the VRSD Emergency Management Plan.

Regional Power Outage

The District has identified the possibility of a regional power outage and its effect on the water supply. In the event of a regional power outage, supply would continue through the service area by employing the use of emergency generators. OPWS has stationary generators located at both the Bishopswood and Lindero Pump Stations.

Earthquake

CMWD has addressed the susceptibility of its water supply system to earthquakes and understands that a catastrophic earthquake could result in a devastating supply reduction. In order to mitigate the impacts associated with a large-scale earthquake, TSD and CMWD have identified specific emergency actions to implement, including facility inspections and repairs. The CMWD 2010 Urban Water Management Plan notes that "the key to efficient repair procedures is a structured approach, in which specific procedures, responsible personnel, and necessary equipment are identified and secured ahead of time." In recognition of this, CMWD has an emergency repair protocol to address leaks as a result of earthquakes. That protocol is as follows:

- Establishment of an emergency repair organizational structure.
- Redevelopment of a spare pipe and fittings inventory and management of inventory records.
- Identification of Emergency contacts.
- Damage assessment.
- Comprehensive repair drawings, specifications, and procedures for various facility types.
- Ongoing maintenance of the protocol.

Repairs to leaks in the system and implementation of the described protocol are made possible through emergency funds and stockpiling of emergency pipeline repair materials.

In addition, the TSD Water Shortage Contingency Plan, which can be found in Appendix E, addresses specific precautions and actions that can be taken in the event of an earthquake. With the exception of the Conifer Tank, all of the water tanks meet 2008 seismic standards. In the event that some facilities are damaged in the event of a catastrophic earthquake, OPWS can supply water from any tank to any distribution zone through zone interconnections and looped distribution pipelines to allow potentially damaged portions of the service area to be quickly isolated and repaired.

CMWD Ordinance 12 requires all of its member agencies to provide "adequate storage or alternate supplies, other than from District facilities, to meet their peak daily and hourly demands." To meet this requirement, member agencies should have sufficient storage capacity to provide uninterrupted water deliveries in the event of a service interruption by CMWD. Ordinance 12 further specifies that service interruptions may exceed 72 hours during events such as "routine maintenance, internal inspection, rehabilitation, and improvement projects on District facilities." Currently, the total storage capacity of OPWS is approximately 48 hours of average water use.

With population growth, energy shortages, earthquakes, and the threat of terrorism experienced by California; maintaining the gentle balance between water supply and demand is a complicated task that requires planning and forethought. In the event that a water shortage occurs, simple measures can be implemented to conserve the water supply at a public level. Below, stages are discussed during which various conservation measures will be imposed by the District and CMWD.

Table 5.2.1
Water Shortage Contingency — Rationing Stages to Address Water Supply Shortages

Stage No.	Water Supply Conditions	% Shortage
Permanent - Minimal	Water conservation requirements are effective at all times, are permanent, and will help to reduce water consumption by 15%.	Up to 15%
Water Shortage Stage I – Moderate	A Stage 1 Water Supply Shortage condition exists when the TSD Board of Directors determines, in its sole discretion, that due to drought or other supply reductions, a 25% consumer demand reduction is required in order to ensure that sufficient supplies will be available to meet anticipated demands.	15-25%
Water Shortage Stage II – Severe	A Stage 2 Water Supply Shortage condition exists when the TSD Board of Directors determines, in its sole discretion, that due to drought or other supply reductions, a 35% consumer demand reduction is required in order to ensure that sufficient supplies will be available to meet anticipated demands.	25-35%
Water Shortage Stage III – Critical	A Stage 3 Water Supply Shortage condition is also referred to as an “Emergency” condition. A Stage 3 Water Supply Shortage condition exists when the TSD Board of Directors declares a water shortage emergency in a manner and upon the grounds set forth in California Water Code Section 350 et seq.	35-50%

Urban Water Management Planning Act Requirement:

10632(d) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.

10632(e) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

In the event of a significant reduction of water supply, the District has several stages of actions to take and policies to implement to minimize the impacts of water shortage, prepare for an increase in shortage, and attempt to conserve water to prevent further shortage. The District has adopted a Water Shortage Contingency Plan and Ordinance Number TSD-67, which describe the measures to take in the event of a water shortage. The plan consists of water waste prohibitions and three additional levels of conservation measures to take in the case of a shortage of supply. The level of conservation is determined by the percent shortage. Table 5.2.2 provides an overview of the mandatory prohibitions and the consumption reduction methods the District will implement to compensate for the water shortage. A copy of Ordinance TSD-67 is in Appendix F.

Table 5.2.2 Water Shortage Contingency — Mandatory Prohibitions	
Examples of Prohibitions	**Stage When Prohibition Becomes Mandatory**
Demand reduction program	All Stages
Reduce pressure in water lines	I, II, III
Flow restriction	III
Restrict for only priority uses	III
Use prohibitions	All Stages
Water shortage pricing	All Stages
Per capita allotment by customer type	III
Voluntary rationing	All Stages
Mandatory rationing	I, II, III
Incentives to reduce water consumption	All Stages
Education Program	All Stages
Percentage reduction by customer type	I, II, III
Per connection allotments	II, III

Prohibition Against Waste (0-15% Shortage)

The following water conservation requirements are effective at all times in the District, as put forth in Ordinance TSD-66, and are permanent. A copy of TSD-66 can be found in Appendix G. These actions contribute to a water savings up to fifteen percent.

- **Limits on Watering Hours**: Watering or irrigating of lawn, landscape or other vegetated area with potable water is prohibited between the hours of 9:00 a.m. and 5:00 p.m. on any day, except by use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off nozzle or device, or for very short periods of time for the express purpose of adjusting or repairing an irrigation system.
- **Limit on Watering Duration**: Limit irrigation system watering to no more than 15 minutes per day per station. This does not apply to landscape irrigation systems that exclusively use very low-flow drip type irrigation systems when no emitter produces more than 2 gallons of water per hour and weather based controllers or stream rotor sprinklers that meet a 70% efficiency standard.
- **No Watering During Rain Events**: Irrigation is not permitted during periods of rain nor in the 24 hours following each rain event in the Oak Park Area.

- **No Excessive Water Flow or Runoff**: Watering or irrigation of any lawn, landscape or other vegetated area in a manner that causes or allows excessive water flow or run-off onto an adjoining sidewalk, driveway, street, alley, gutter or ditch must be must be repaired within 5 days of observation and/or notification by the District.
- **No Washing Down Hard or Paved Surfaces**: Washing down hard or paved surfaces, including but not limited to sidewalks, walkways, driveways, parking areas, tennis courts, patios or alleys is prohibited except when necessary to alleviate safety or sanitary hazards and only by use of a hand-held bucket or similar container, a low-volume high pressure cleaning machine equipped to recycle any water used or a low volume high pressure water broom.
- **Obligation to Fix Leaks, Breaks or Malfunctions**: All leaks, breaks, or other malfunctions in the water user's plumbing, distribution, or irrigation system must be remedied within five (5) days of observation and/or notification by the District.
- **Recirculating Water Required for Water Fountains and Decorative Water Features**: Operating a water fountain or other decorative water feature that does not use re-circulating water is prohibited.
- **Limits on Washing Vehicles**: Using water to wash or clean a vehicle including but not limited to any automobile, truck, van, bus, motorcycle, boat or trailer whether motorized or not is prohibited, except by use of a hand-held bucket or similar container or a hand-held hose equipped with a positive self-closing water shut-off nozzle or device.
- **Drinking Water Served Upon Request Only**: Restaurants are prohibited from providing drinking water to any person unless expressly requested by that person.

Stage 1 Water Supply Shortage (15% - 25% reduction)

The following mandatory water conservation requirements, in addition to the prohibited uses of water for water waste, apply during such time that the Stage 1 Water Supply Shortage is in effect:

- **Limits on Watering Days**: Watering or irrigation of lawn, landscape or other vegetated area with potable water is limited to 3 days per week. During the months of November through March, watering or irrigation of lawn, landscape or other vegetated area with potable water is limited to no more than 2 days per week. This provision does not apply to landscape irrigation systems that exclusively use very low-flow drip type irrigation systems when no emitter produces more than 2 gallons of water per hour. This

provision does not apply to use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off device, or for very short periods for the express purpose of adjusting or repairing an irrigation system.

- **Obligation to Fix Leaks, Breaks or Malfunctions**: All leaks, breaks, or other malfunctions in the water user's plumbing, distribution, or irrigation system must be remedied within seventy two (72) hours of observation and/or notification by the District.
- **Other Prohibited Uses**:
    - Use only recycled water for construction site dust control, consolidation of backfill.
    - The Board of Directors may implement other prohibited water uses as determined by the District after notice to customers.

Stage 2 Water Supply Shortage (25% - 35% reduction).

The following mandatory water conservation requirements, in addition to the prohibited uses of water for water waste and Stage 1 actions, apply during such time that the Stage 2 Water Supply Shortage is in effect:

- **Limits on Watering:** Watering or irrigating of lawn, landscape or other vegetated area with potable water is restricted in accordance with the allotments in the latest version of the Triunfo Sanitation District Oak Park Water Shortage Contingency Plan (Water Shortage Contingency Plan). Watering or irrigation of lawn, landscape or other vegetated area with potable water is limited to 2 days per week. During the months of November through March, watering or irrigation of lawn, landscape or other vegetated area with potable water is limited to no more than 1 day per week. This provision does not apply to landscape irrigation systems that exclusively use very low-flow drip type irrigation systems when no emitter produces more than 2 gallons of water per hour. This provision does not apply to use of a hand-held bucket or similar container, a hand-held hose equipped with a positive self-closing water shut-off device, or for very short periods for the express purpose of adjusting or repairing an irrigation system.
- **Obligation to Fix Leaks, Breaks or Malfunctions**: All leaks, breaks, or other malfunctions in the water user's plumbing, distribution, or irrigation system must be remedied within forty eight (48) hours of observation and/or notification by the District.

- **Other Prohibited Uses:**
    - No filling, cleaning and/or refilling of decorative fountains, ornamental lakes or ponds except to the extent needed to sustain aquatic life, provided that such animals have been actively managed within the water feature prior to declaration of this supply shortage stage.
    - Residential car washing prohibited. Use car washes available with water recycling systems.
    - The filling or topping off of any new or existing residential pools or outdoor spas is prohibited.
    - Planting of new turf grass is prohibited.
    - Outdoor evaporative mist coolers are prohibited.
    - Main line flushing is allowed for emergency purposes only.
    - The District may implement other prohibited water uses as determined by the Board of Directors, after notice to Customers.

Stage 3 Water Supply Shortage – Emergency Condition (Greater than 35% reduction)

The following mandatory water conservation requirements, in addition to the prohibited uses of water for water waste and Stage 1 and Stage 2 actions, apply during such time that the Stage 3 Water Supply Shortage is in effect:

- **Limited Watering or Irrigating:** Watering or irrigating of lawn, landscape or other vegetated area with potable water is restricted in accordance with the allotments in the Water Shortage Contingency Plan for residential customers. This restriction does not apply to the use of recycled water or to the following categories of use:
    a. Maintenance of existing landscape necessary for fire protection;
    b. Maintenance of existing landscape for soil erosion control;
    c. Maintenance of plant materials identified to be rare or essential to the well-being of protected species;
    d. Maintenance of landscape within active public parks and playing fields, daycare centers, golf course greens, and school grounds, provided that such irrigation does not exceed 2 days per week;
    e. Actively irrigated environmental mitigation projects.

- **Obligation to Fix Leaks, Breaks or Malfunctions**: All leaks, breaks, or other malfunctions in the water user's plumbing, distribution, or irrigation system must be remedied within twenty four (24) hours of observation and/or notification by the District.
- **Other Prohibited Uses**: The District may implement other prohibited water uses as determined by the Board of Directors, after notifying customers.

In addition to the mandatory water conservation efforts described above, the District has established per-connection water allotments based on residential lot size groups (multifamily homes are considered in group A). Each group's water use was averaged for 2008 and allocations were estimated for each group to achieve water reduction goals for stages 2 and 3. A model of the water allotment structure can be found in the Water Shortage Contingency Plan in Appendix E. The model water allotment structure contains values for the proposed water allotment in the event of a shortage; however the actual numbers may vary depending on supplies, economic factors, and severity of the drought.

Urban Water Management Planning Act Requirement:

10632(f) Penalties or charges for excessive use, where applicable.

In the case of a water supply shortage, violators of Ordinance TSD-67 can face a maximum of fine of $1,000 or imprisonment for no more than 30 days. Table 5.2.3 describes the penalties associated with single and recurring violations, which are outlined in the ordinance. This includes a first warning, and subsequent fines increasing from $100, and, on the fourth violation, a notice of intent to install a flow restrictor.

Table 5.2.3
Water Shortage Contingency — Penalties and Charges

Violation	Stage When Penalty Takes Effect	Penalty or Charge[1]
First Violation of Water Ordinance	All Stages	Written Warning
Second Violation of Water Ordinance within a 12 Month Period	All Stages	Written Warning and $100
Third Violation of Water Ordinance within a 12 Month Period	All Stages	$150
Fourth Violation of Water Ordinance within a 12 Month Period	All Stages	$200
Fifth and Subsequent Violations of Water Ordinance within a 12 Month Period	All Stages	$250 and subject to a water flow restrictor device of approximately 1 gpm

[1]Penalties increase for Stages 2 and 3; refer to Ordinance TSD-67, Appendix F.

Urban Water Management Planning Act Requirement:

10632(g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f) inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

Recognizing that a time of severe water shortage will have fiscal and social impacts to the Oak Park Community, the Board of Directors for the District have established measures to alleviate these impacts to Oak Park Water Service customers.

To address the potential fiscal impact locally, the District has adopted a mechanism designed to increase rates as the supply drops and water costs to the District from its supplier begin to rise. This has the dual effect of 1) mitigating the fiscal impact to the District of a water shortage and 2) serving as an incentive to customers to work at conservation efforts. The quantity of increase is estimated for a three-tiered water rate structure in Table 5.2.4. The example water rate increases are based on estimated limited supply conditions to help meet the revenue in case of a water shortage, but may change due to varying supplies.

Table 5.2.4 Example Rate Increase Structure During Shortage			
	Stage I (25%)	**Stage II (35%)**	**Stage III (50%)**
Tier I	1% Increase	3% Increase	7% Increase
Tier II	5% Increase	8% Increase	18% Increase
Tier III	7% Increase	10% Increase	22% Increase

Urban Water Management Planning Act Requirement:

10632(h) A draft water shortage contingency resolution or ordinance.

The Water Shortage Contingency Plan can be found in Appendix E. In addition, Ordinance TSD-67, which describes further actions to be taken in case of a water shortage and is referenced by the Water Shortage Contingency Plan, can be found in Appendix F.

5.3 Water Quality

Urban Water Management Planning Act Requirement:

10634 The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects urban water management strategies and supply reliability.

As identified in Chapter 4, the water quality issues associated with the water supply to the District are the same as quality issues experienced by CMWD, and similar to those experienced by MWD. MWD has considered risks to the water quality of water supplied through the Colorado River and the State Water Project. MWD reports that increased salinity and chemicals (e.g., perchlorates, chromium VI, etc.) in the water it is supplied with, as a theoretical water quality event, will cause at most a 15% reduction in supply. However, MWD also noted if concentrations of these contaminants exceed the drinking water standards, tactics such as utilizing only small amounts of the affected water and blending it with potable, processed water

would reduce the concentration to treatable and acceptable levels. The MWD has stated that it "anticipates no significant reductions in water supply availability from [the Colorado River, State Water Project, and local groundwater] sources due to water quality concerns over the study period."

The District realizes the importance of constantly assuring that the water it distributes meets potable water standards. Although there are no water quality issues that immediately threaten the supply to the District's customers, the District maintains knowledge of water quality issues to prevent water of poor quality from being distributed. Following are a description of the most pertinent issues of concern, due to either historically increasing levels of salinity or threshold reductions for chemicals.

Salinity

Increased salinity in the water received from the Colorado River has required MWD to utilize one of the tactics described above: blending SWP water with Colorado River water to reduce the overall salinity concentration. Although this has not caused water supply shortages, if salinity levels continue to increase, additional membrane treatment of water from the Colorado River may be required. This will slow the water purification process and could result in up to a 15% reduction in water supply.

To prevent a reduction in supply, MWD has established a Salinity Management Policy, which sets the goal of delivering water with less than 500 mg/L of total dissolved solids. Generally, this has caused issues with only the Colorado River; the SWP has historically been observed to have significantly lower salinity levels (250 – 300 mg/L). In comparison, the total dissolved solids concentration in groundwater sources is generally greater than 1000 mg/L.

In addition to affecting the potable water supply, high levels of salinity also reduce the quality of treated wastewater, which could potentially affect the recycled water supply. As recycled water is used for irrigation purposes within the District's service area, high salinity levels can decrease the yield of crops. If salinity levels were to rise, it would result in prohibitions on use or more expensive wastewater treatment would be necessary at TWRF. These issues will be addressed as necessary by TWRF.

Chromium VI (Hexavalent Chromium)

Currently, Chromium VI is included in the measurement of total Chromium, and total Chromium levels are maintained at or below the California Department of Public Health standard MCL (50 µg/L). In a draft release by the Office of Environmental Health Hazard Assessment (OEHHA) on December 31st, 2010, a public health goal (PHG) for Chromium VI was proposed at 0.02

µg/L. A PHG is not an enforceable regulatory standard. However, state law requires the California Department of Public Health to use the PHG as guidance in developing an MCL. Meanwhile, many local water agencies are collaborating on research to determine effective treatment options for Chromium VI in the State's drinking water sources. MWD utilizes analytical testing to ensure that Chromium levels do not exceed the current standard, and in the event that Chromium VI-specific standards are implemented, MWD would not have to change its testing method, as the current minimum threshold for its analytical testing is below the proposed concentration threshold.

MWD records of Chromium VI content reveal that, if more stringent goals are implemented, additional treatment of SWP water may be required as levels have historically been noted to exceed the proposed PHG. The draft released by OEHHA states that the PHG of 20 ng/L is intended to be a "stringent health-protective goal" as opposed to a "maximum 'safe' level of chromium 6 in drinking water." In contrast to SWP water, water from the Colorado River has historically been recorded as generally having undetectable levels of Chromium VI.

Table 5.3.1 indicates the potential impacts of water quality on the District's water supply, as identified by CMWD and MWD.

Table 5.3.1
Water Quality — Current and Projected Water Supply Impacts

Water source	Description of condition	2010	2015	2020	2025	2030
Calleguas Municipal Water District	No water quality issues expected	0	0	0	0	0

Units: acre-feet per year

5.4 Drought Planning

Urban Water Management Planning Act Requirement:

10631(c)(1) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following: (A) an average water year, (B) a single dry water year, (C) multiple dry water years.

All potable water supplies are provided through the CMWD as part of MWD and the SWP. Since the supply is not directly obtained by the District, the determination of reliability will largely be determined by CMWD and MWD analyses to provide a consistent water supply to the District during times of normal, single dry, and multiple dry years. Although the District does not obtain its water directly from a natural source (e.g. groundwater or surface water), the District is committed to reducing water demand during times of drought in order to conserve water and improve reliability for future water supplies.

Table 5.4.1 identifies the normal, single dry, and multiple dry water years chosen to represent the water supply for supply from CMWD:

Table 5.4.1
Basis of Water Year Data

Water Year Type	Base Year(s)
Average Water Year	1922-2004
Single-Dry Water Year	1977
Multiple-Dry Water Years	1990-1992

During these years, the percent of supply that was available to the public for use is summarized in Table 5.4.2.

Table 5.4.2
Supply Reliability — Historic Conditions

Average / Normal Water Year	Single Dry Water Year	Multiple Dry Water Years		
		Year 1	Year 2	Year 3
2002	1977	1990	1991	1992
Percent of Average/Normal Year:	101%	99%	99%	99%

In the single dry water year, demand increased and therefore more water was supplied to meet the demand due to increased temperatures, evapotranspiration rates, and a longer growing

season. Although this results in using more water than is naturally replenished during these years, water reserves are available to provide a reliable source of water in the event of another single dry year with similar hydrology.

Urban Water Management Planning Act Requirement:

10632(a) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.

In the event of a water supply shortage, the District has in place several stages of action to take. These are listed above in the Water Shortage Contingency Plan Section.

Urban Water Management Planning Act Requirement:

10632(b) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.

The table below shows the minimum water supply available during the next three years with a multiple year hydrology as defined by the 1988-1990 water years. It can be seen that water supplies for the next three years with multiple dry year hydrology are expected to be able to meet 100% of the demand for the District as identified by its water supplier, CMWD.

Table 5.4.3
Supply Reliability — Current Water Sources

Water supply sources	Average / Normal Water Year Supply	Multiple Dry Water Year (1988)	Multiple Dry Water Year (1989)	Multiple Dry Water Year (1990)
		Year 2011	Year 2012	Year 2013
Calleguas Municipal Water District	3,100	3,100	3,100	3,100
Percent of normal year:		100%	100%	100%

Units: acre-feet per year

Although the supplies are great enough to be met for the next three years in the event of a drought, continuing to consume such quantities from the water supply may outweigh the water replenished through natural processes in the distribution chain. This could potentially result in

negative consequences, including overdraft conditions of the groundwater basins. To prevent this from happening, TSD/OPWS is among the many water districts in California committed to preserving water supplies. In the event of a single dry or multiple dry year scenario, the District would reduce demand by implementing the water conservation measures described above in the Water Shortage Contingency Plan Section. This, in conjunction with the demand management measures in place, emphasizes the importance of water conservation to the District and its customers.

Table 5.4.3 does not identify the source of recycled water as a potable water source. Recycled water is accounted for in the following tables to compare the supply and demand during normal, single dry, and multiple dry year scenarios. The data regarding total demand and supply, including recycled water, is documented in Chapters 3 and 4, respectively.

Urban Water Management Planning Act Requirement:

10632(i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

The District receives water from CMWD and can monitor monthly delivery only. CMWD plans for its "Turnout Automation Project" to monitor instantaneous flow information; in future years, this mechanism will greatly help the District in on-demand monitoring of water deliveries and uses. Currently, OPWS regularly compares water use history (by meter) on a monthly basis to monitor reductions.

Under normal water supply conditions, potable water distribution figures are recorded monthly. Totals are logged, reported monthly and incorporated into the water usage report.

During a Stage I or Stage II water shortage, monitoring is increased. Daily distribution figures can be field monitored. The Water Distribution Operator can compare the distribution reads to the typical distribution values to verify that the reduction goal is being met. Weekly reports can be forwarded to the Operations Manager. Monthly reports would be distributed, and the District Manager would be included as a recipient. If reduction goals are not met, the Manager will notify the Board of Directors so that corrective action can be taken.

During a Stage III water shortage, the procedure listed above will be followed, with the addition of a daily usage report to the District Manager. During emergency shortages, production figures may be reported to the Water Distribution Operator, CMWD, and to the Operations Manager. Urgent reports will be provided to the District Manager.

Urban Water Management Planning Act Requirement:

10635(a) Every urban water management supplier shall include, as part of its urban water management plan, an assessment of the reliability of it water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available date from state, regional, or local agency population projections within the service area of the urban water supplier.

The following tables, 5.4.4 through 5.4.6, compare the total supply and demand as identified in Chapters 3 and 4 for normal, single dry, and multiple dry years. It can be seen that the supply available to the District, as provided in the CMWD 2010 Urban Water Management Plan, is above the total demand, even during multiple dry years. However, TSD is still committed to water conservation in single dry and multiple dry years to help preserve precious water reserves and supplies.

The data for the normal, single dry, and multiple dry year scenarios are provided in the supply portion of the CMWD 2010 Urban Water Management Plan. The plan identifies that during a single dry year scenario, demand will increase by approximately 3% over a normal year. CMWD identified that supply was sufficient in a single dry year to meet this increased demand. During a multiple dry year, it was identified that the demand will remain constant, consistent with a normal water year, due to conservation measures that will be enacted in this situation. This will offset the predicted increase in demand over a multiple dry year period. CMWD did not identify any reliability issues with delivering water during a single or multiple dry year period, and identified that supply would be sufficient to meet demand.

Table 5.4.4 Supply and Demand Comparison — Normal Year				
	2015	**2020**	**2025**	**2030**
Supply Totals	3,680	3,687	3,693	3,700
Demand Totals	3,490	3,193	3,231	3,267
Difference	190	494	462	433
Difference as % Of Supply	5%	13%	13%	12%
Difference as % Of Demand	5%	15%	14%	13%

Units are in acre-feet per year.

During a normal year, supply as identified by CMWD will exceed the demand projected from Chapter 3.

Table 5.4.5 Supply and Demand Comparison — Single Dry Year				
	2015	**2020**	**2025**	**2030**
Supply Totals	3,780	3,787	3,793	3,800
Demand Totals	3,595	3,289	3,328	3,365
Difference	185	498	465	435
Difference as % of Supply	5%	13%	12%	11%
Difference as % of Demand	5%	15%	14%	13%

Units are in acre-feet per year.

The demand in a single dry year was observed to increase by approximately 3%. During a single dry year, CMWD anticipates being able to exceed this demand, with an available supply of 3,200 AFY; an increase of 100 AF over a normal and multiple dry year scenario. However, as mentioned previously, the District is committed to water conservation efforts to preserve water supplies during dry years. In the event of a water shortage, measures outlined in the Water Shortage Contingency Plan will be implemented.

Table 5.4.6 Supply and Demand Comparison — Multiple Dry-Year Events					
		2015	**2020**	**2025**	**2030**
Multiple-dry year first year supply	**Supply Totals**	3,680	3,687	3,693	3,700
	Demand Totals	3,490	3,193	3,231	3,267
	Difference	190	494	462	433
	Difference as % of Supply	5%	13%	13%	12%
	Difference as % of Demand	5%	15%	14%	13%
Multiple-dry year second year supply	**Supply Totals**	3,680	3,687	3,693	3,700
	Demand Totals	3,490	3,193	3,231	3,267
	Difference	190	494	462	433
	Difference as % of Supply	5%	13%	13%	12%
	Difference as % of Demand	5%	15%	14%	13%
Multiple-dry year third year supply	**Supply Totals**	3,680	3,687	3,693	3,700
	Demand Totals	3,490	3,193	3,231	3,267
	Difference	190	494	462	433
	Difference as % of Supply	5%	13%	13%	12%
	Difference as % of Demand	5%	15%	14%	13%

Units are in acre-feet per year.

CMWD anticipated a supply that could exceed water demand in a multiple dry year period. However, in stages of more severe water shortages, the District may ration supplies as necessary, and implement water conservation measures resulting in up to a 50% water use reduction. This will be done in situations when water supply is projected to reach dangerously low levels, and an emergency situation is imminent.